

Claims

- [c1] 1.Dermatological treatment apparatus comprising:
- a treatment head for generating intense pulses of non-laser light to an area of skin under treatment;
 - a controller for controlling operation of and for driving the treatment head in accordance with one or more treatment parameters;
 - a sensing means associated with the treatment head for detecting a condition of an area of skin under treatment;
- wherein
- the sensing means is operative to send a signal to the controller indicative of the detected condition, and the controller being operative to modify one or more treatment parameters in response to that signal.
- [c2] 2.Dermatological treatment apparatus according to claim 1 in which the controller selects initial values of the treatment parameters, and one or more of those parameters are modified during treatment in response to a signal received from the sensing means.
- [c3] 3.Dermatological treatment apparatus according to claim 1 in which if the controller determines that there is a risk that damage might occur at an area under treatment through an analysis of the signal from the sensing means, it is operative

to modify the operation of the apparatus to minimise or remove the risk that damage will occur.

[c4] 4.Dermatological treatment apparatus according to claim 1 in which the sensing means is operative to detect heat in the area under treatment.

[c5] 5.Dermatological treatment apparatus according to claim 4 in which the sensing means includes a temperature sensor for measuring the temperature of the surface of the skin.

[c6] 6.Dermatological treatment apparatus according to claim 5 in which the temperature sensor operated as a passive measuring device that does not introduce energy into the skin.

[c7] 7.Dermatological treatment apparatus according to claim 6 in which the temperature sensor can detect infra-red radiation emitted by the skin.

[c8] 8.Dermatological treatment apparatus according to claim 5 in which the temperature sensor has low sensitivity to the light of the treatment pulse.

[c9] 9.Dermatological treatment apparatus according to claim 5 in which the sensing means includes an optical sensor that is operative to detect optical properties of the area of skin under treatment.

[c10] 10.Dermatological treatment apparatus according to claim 9 in

which the optical sensor is operative to measure the colour of the skin under treatment.

[c11] 11.Dermatological treatment apparatus according to claim 10 in which the optical sensor is operative to measure the intensity of light reflected by the skin at several discrete frequencies.

[c12] 12.Dermatological treatment apparatus according to claim 11 in which the optical sensor can detect one or more of blue, green, red and infra-red light.

[c13] 13.Dermatological treatment apparatus according to claim 9 in which the optical sensor is operative to measure reflection of the intense light pulses that perform the treatment.

[c14] 14.Dermatological treatment apparatus according to claim 1 in which the controller is operative upon detection of unfavourable conditions developing in the skin to modify treatment parameters to reduce (possibly entirely) the amount of energy that is being applied to the skin.

[c15] 15.Dermatological treatment apparatus according to claim 14 in which the modified parameters include one or both of intensity of applied light pulses and repetition period of application of light pulses.

[c16] 16.Dermatological treatment apparatus according to claim 1

further comprising cooling means operable to increase the rate at which energy is removed from the skin.

[c17] 17.Dermatological treatment apparatus according to claim 16 in which the controller is operative upon detection of unfavourable conditions developing in the skin to operate the cooling means.

[c18] 18.Dermatological treatment apparatus according to claim 1 that includes a blower for passing a stream of cold air over an area or skin being treated.

[c19] 19.Dermatological treatment apparatus according to claim 1 having a contact component that is intended to be brought into contact with an area of skin under treatment, the cooling means being operative to cool the contact component.

[c20] 20.Dermatological treatment apparatus according to claim 19 in which the contact component is a light guide.

[c21] 21.Dermatological treatment apparatus according to claim 19 in which the cooling means includes fluid passages through and/or around the contact component.

[c22] 22.Dermatological treatment apparatus according to claim 19 in which the cooling means includes a Peltier cooler.

[c23] 23.Dermatological treatment apparatus according to claim 19 in which the contact component is formed of quartz.

- [c24] 24.Dermatological treatment apparatus according to claim 1 provided in combination with an optical compound, which compound is at a temperature below that of ambient temperature and/or below the temperature of the skin prior to commencement of treatment.
- [c25] 25.Dermatological treatment apparatus according to claim 1 in which the treatment head includes a flashtube for generating pulses of light.